New Ways to Explore Aura Data for Science Research

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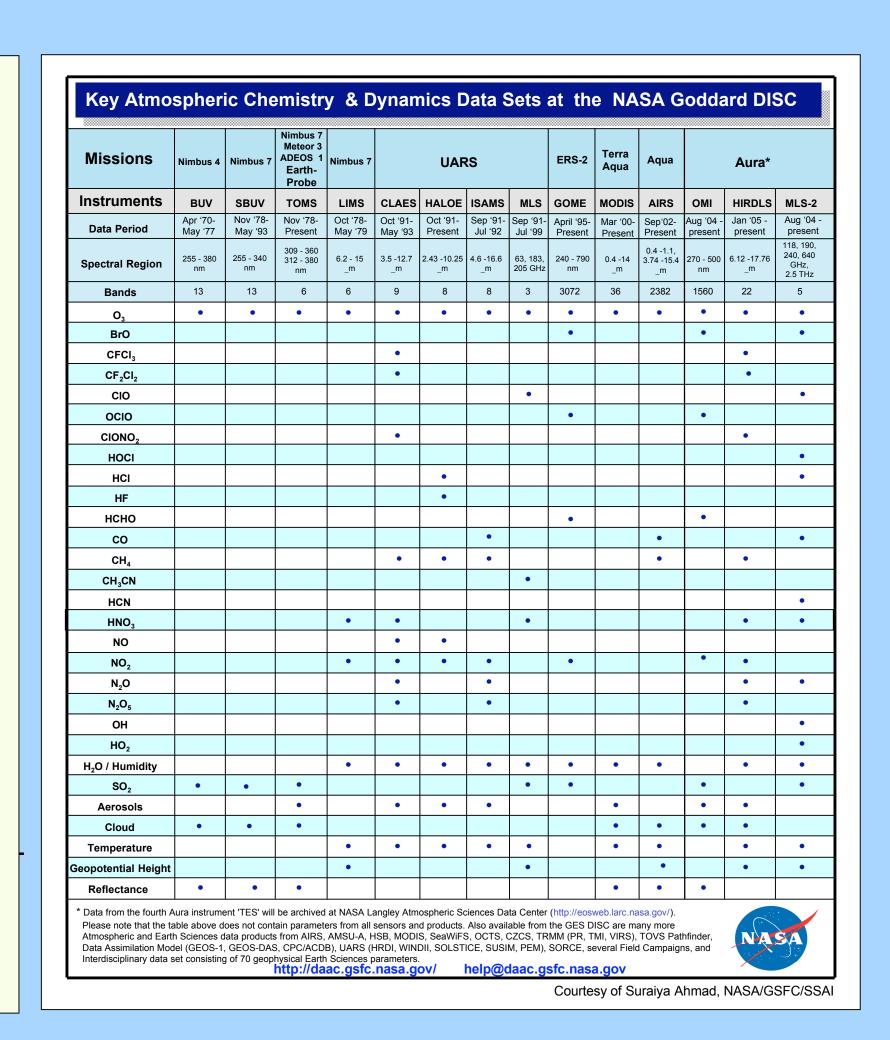
The Atmospheric Composition Data and Information Services Center (ACDISC)

http://acdisc.gsfc.nasa.gov/
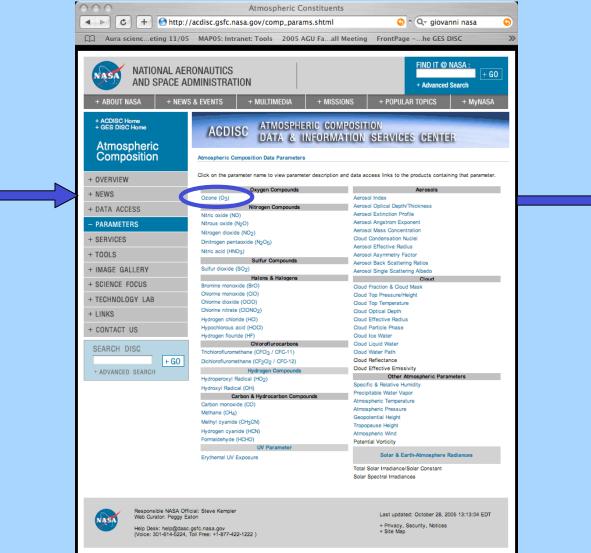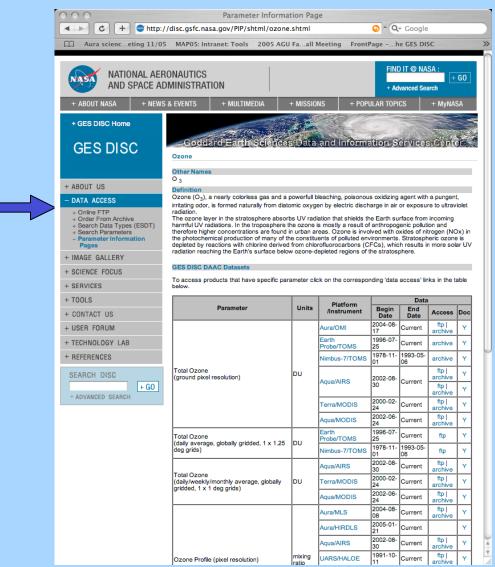
The NASA Goddard Space Flight Center (GSFC) Earth Sciences (GES) Atmospheric Composition Data and Information Services Center (ACDISC), fully operational for almost a year, serves Aura data, as well as previous mission Atmospheric Composition (AC) datasets, such as TOMS, UARS, and TES. With the addition of the in-house developed exploration services, based on community needs and specific to AC datasets, the ACDISC has become one of the most complete multi-mission measurement-based AC data processing, archive and distribution systems. ACDISC has made great strides in facilitating science and applications research by, in consultation with its users, developing innovative tools and data services. As data users become more sophisticated in their research and more savvy with information extraction methodologies, the ACDISC has been responsive to this evolution.

The A-Train Data Depot (ATDD)

As satellites are added to the A-Train, the GES ACDISC will provide single site data access to all resident and remote A-Train data (the ATDD), for cross mission science data access, visualization, and analysis, leveraging existing AURA tools and data services.

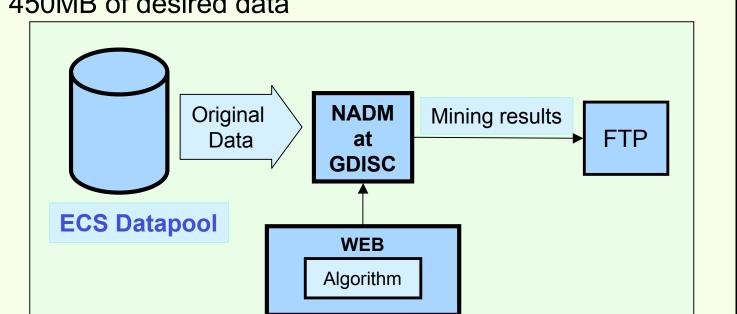See Poster: A-Train Data Depot (Leptoukh, et al)

Giovanni - GES-DISC Interactive Online Visualization and Analysis Infrastructure

http://giovanni.gsfc.nasa.gov

Exploring Data

Discovering Information
Temporal change through animation

Visualizing and Analyzing Findings
ASCII output

Giovanni
Giovanni is becoming an increasingly popular and efficient user-friendly data analysis and visualization tool, capable of providing area plots, one or two variable time plots, Hovmoller plots, ASCII output, image animation, two parameter intercomparisons, two parameter plots, scatter plots (relationships between two parameters), and temporal correlation maps.

Other Data Tools and Services at the GES ACDISC

Near-line Archive Data Mining
- Data Mining system allows global data users to acquire specific desired data, an otherwise impossible task due to sheer volume.
- Web data mining portal to the EOSDIS data pool for industrial users.
- Users submit and execute their data mining algorithm so that just the data of interest is transmitted to the user's site.
- Subscription processing automates mining process.
- This greatly reduces the amount of data that needs to be transferred, freeing up bandwidth for other users.
- For example, 13GB/day of data has been reduced to 450MB of desired data

http://g0dug03u.ecs.nasa.gov/OPS/nadm

Data Read & Display Tools
http://acdisc.gsfc.nasa.gov/tools.shtml

The **atmos_h5** program created at the GES DISC runs in IDL (V6.1), reads HDF5 based or HDF-EOS5 data files, creates binary and ASCII output files for specified parameters. Quick look images for parameters can be shown. atmos_h4 reads HDF 4 files.

The GES DISC **read_h5** program is an interactive command line program written in the C language for browsing and dumping the contents of HDF5 or HDF-EOS5 data files. It will also subset arrays along dimensions and display a tree listing of the file contents.

The **OMI_DISP** program is a downloadable IDL-based utility that displays either single or multiple orbits of OMI L2 2-D parameters in a variety of projections and image formats

Subsetting
- Aura OMI, MLS, HIRDLS (pending) spatial Level 2, 3 subsets for Aura validation
- Additional community driven subsetting planned

Data Access
http://disc.sci.gsfc.nasa.gov/data/
GES DISC hierarchical search and order interface (aka WHOM)

http://eos.nasa.gov/imswelcome
Interface for all of NASA's Earth Observing System and related data (aka EOS Data Gateway or EDG)

Open Source Project for a Network Data Access Protocol (OpenDAP)
http://disc.gsfc.nasa.gov/services/dods/index.shtml
OpenDAP uses a network server that allows clients to retrieve GES DISC data archived in various formats, perform spatial and parameter subsetting, and output the data in ASCII or DODS objects.

--> Giovanni SUPPLEMENT!! <--

COMING SOON!!
Visualization, subsetting, and online analysis of OMI L2G data through Giovanni

Giovanni will soon be able to create virtual OMI gridded global/regional products on-line from L2G data with filtering/selection options. In addition to selecting parameters, area, and time period, users will be able to filter results based on the algorithm quality flags, viewing and solar zenith angles ranges, surface reflectivity ranges, aerosol index values, etc. Users will also have the option to obtain for a grid value with either the best pixel or a simple average of the data points, or the area weighted average. The ASCII output for a selected region will contain grid average values as well as the original values (including lat and long, viewing and solar zenith angles or path length, surface reflectivity and aerosol index) of the pixels that are used in averaging over a cell or grid.